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Economic and Commercial Analysis of the Shrimp Fishing Industry in Quebec, 1990

Economic and Commercial Analysis Report n° 80

Pêches et Océans
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Economic and Commercial Analysis of the Shrimp Fishing Industry in Quebec, 1990

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PREFACE

This report is intended to inform those involved in the Quebec fisheries industry of the shrimp-fishing situation in 1990. It contains a description of the economic and commercial context facing the Quebec shrimp fishery. Readers will find information on world markets (tertiary sector), the shrimp-processing industry in Quebec (secondary sector) and, of course, the shrimp fleet (primary sector). All this data should lead to a better understanding of how these three sectors are interrelated and what dynamics shape the shrimp-fishing industry in Quebec.

Statistics on the Quebec fishing industry are from Fisheries and Oceans Canada, Statistics and Informatics Division, Quebec Region. Data on markets was obtained from various sources, principally the Economic and Commercial Analysis Directorate of DFO in Ottawa. We would like to take this opportunity to thank the personnel of these two divisions for their cooperation and assistance.

Charles Cantin
Economic Services Division
Department of Fisheries and Oceans
Quebec Region, December 1990

ABSTRACT

The world shrimp industry has changed considerably over the past few years. Cultured tropical shrimp is taking an increasingly large share of all markets, whether Japanese, European or American. On the American market, where consumers make little distinction between products, the price of cold-water shrimp has followed the declining price of warm-water shrimp, while in Europe and particularly in Japan the cold-water shrimp market offers good opportunities. This world market situation has affected the Quebec shrimp industry. On the processing side, despite lower prices to fishermen in 1990, the gross margin per kilogram of product sold was down from 1989. For fishermen, the increased landings were not sufficient to compensate for the decrease in price, which resulted in lower income for skipper-owners of shrimpers in 1990.

SOMMAIRE EXÉCUTIF

L'industrie mondiale de la crevette est depuis quelques années en métamorphose. Sur tous les marchés, qu'ils soient japonais, européens ou américains, la crevette tropicale de source aquicole est de plus en plus omniprésente. Sur le marché américain, où les produits semblent peu différenciés, le prix de la crevette nordique suit la tendance à la baisse du prix de la crevette d'eau chaude. Par contre, en Europe et surtout au Japon, le marché de crevette nordique offre des opportunités intéressantes. Cette situation sur les marchés mondiaux a affecté l'industrie québécoise de la pêche à la crevette. Du côté des producteurs, malgré un prix moindre offert aux pêcheurs en 1990, leur marge de profit par kilogramme de produit vendu a diminué comparativement à 1989. Au chapitre des pêcheurs, la hausse des débarquements de ces dernières années n'a pu compenser la baisse de prix, ce qui a fait diminuer les revenus des capitaines-propriétaires de crevettiers en 1990.

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INTRODUCTION

Based on available data, Quebec may be said to be a semi-exporter of shrimp, since 50% of its production goes to markets outside Canada, with the other half being sold in Canada. In view of this, and in an attempt to determine what the future holds in terms of prices for shrimp products, the tertiary sector will have to look at trends in both national and world markets. Unfortunately, there is little statistical data available to us on consumption, prices and types of shrimp sold in Quebec and in Canada as a whole. We can only look at the world picture, which has a direct impact on prices for Quebec shrimp end products.

The world shrimp industry has been changing considerably in recent years. Normal price cycles have been upset by the appearance of cultured shrimp on the market. For cold-water shrimp, 1989 was characterized by an increase in supply and a drop in demand on the American market, where the preference for cultured shrimp is growing from year to year, to the detriment of cold-water shrimp. This situation has repercussions on prices for shrimp end products, which were also down in 1989. What must be determined is whether this trend continued in 1990 and what the future holds, particularly for 1991. Our analysis will use an approach based on relations between the notions of supply and demand.

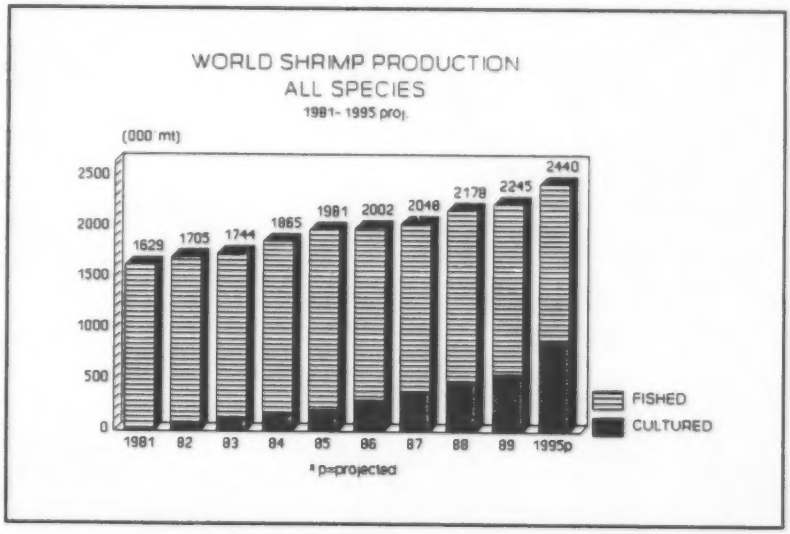
1. THE TERTIARY SECTOR

It is no longer true to say that there are separate markets for cold-water shrimp and warm-water shrimp. The appearance of cultured shrimp as a potential substitute for cold-water shrimp forces us to look at world trends in shrimp supply whatever the source.

1.1 WORLD SHRIMP SUPPLY: ALL SPECIES

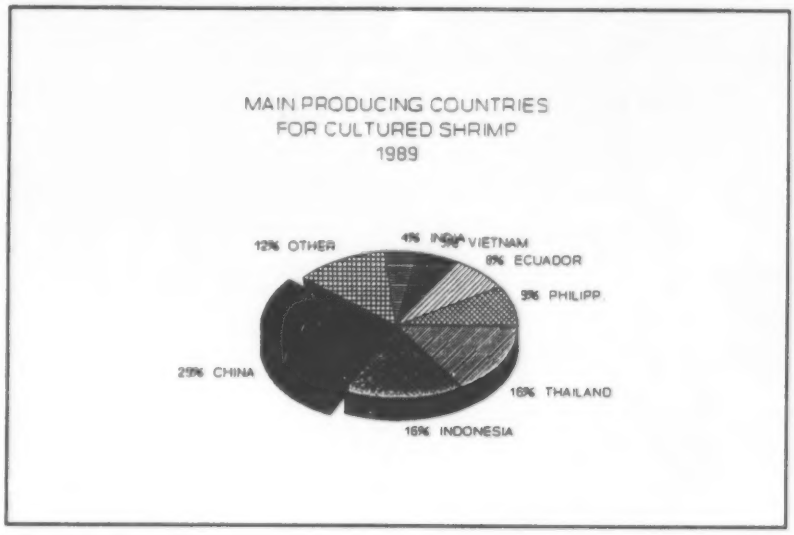
"Cargill intends to become one of the big three U.S. importers of shrimp," announced a fisheries trade journal recently. The entry into this market of agri-food giant Cargill, with sales of $43 billion, is a good indication of the potential market for this commodity. World shrimp production trends may well be one reason why Cargill sees expansion potential in shrimp.

Chart 1



World production of shrimp has risen steadily since 1981, when it stood at 1,629,000 mt; 1989 production was 2,245,000 mt, an increase of 38% in nine years. This rise is due almost entirely to shrimp farming. Forecasts for 1995 indicate that production of cultured shrimp could reach 900,000 mt, an increase of 60%.

Chart 2

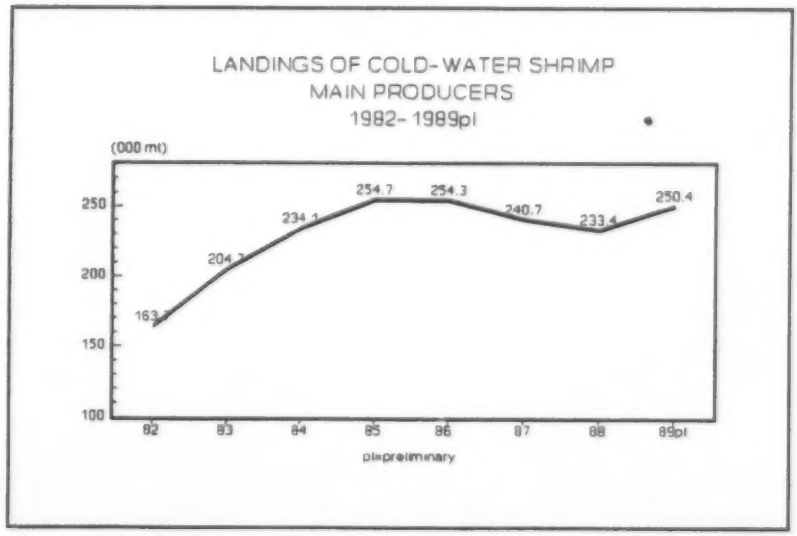


Any fluctuation in production by the main suppliers of cultured shrimp causes markets to fluctuate. China, with 29% of production in 1989, is a good example. Cultured shrimp from China expected on the market in Fall 1990 has not yet arrived, creating upward pressure on prices for warm-water shrimp.

Let us now look at the situation for cold-water shrimp.

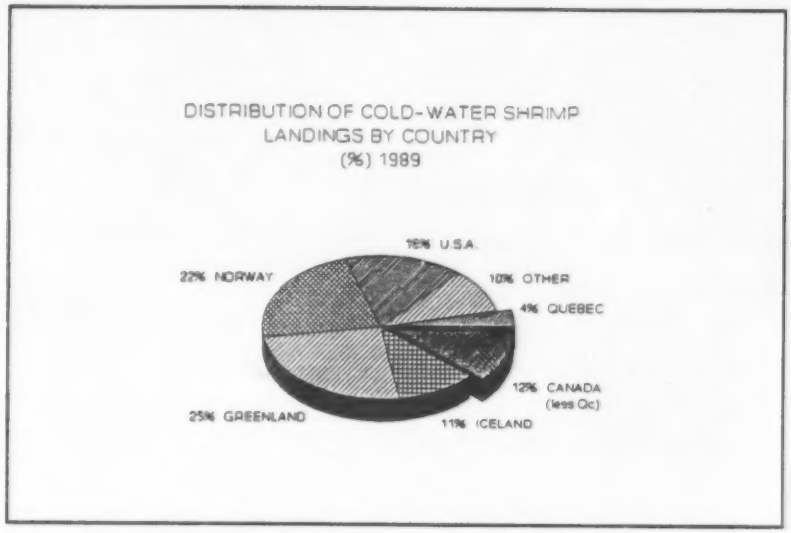
1.2 WORLD SUPPLY OF COLD-WATER SHRIMP

Chart 3



World landings of cold-water shrimp from main producing countries have risen from 163,700 mt in 1982 to 250,400 mt in 1989, an increase of 53% for this period.

Chart 4



Historically, Norway was the main producer of cold-water shrimp, but its share of world landings was only 22% in 1989, while that of Greenland rose to 25%. Canada is in fifth place, with 16% of world landings of cold-water shrimp. Quebec accounted for 4% of world landings of cold-water shrimp in 1989 and may thus be considered to have little influence on setting world prices.

Let us look now at the main producers of cold-water shrimp in Europe and North America.

EUROPE

Norway, which was the traditional leader in shrimp fishing, saw its landings decline from 91,000 mt in 1985 to 42,000 mt in 1988, although there was an upswing in 1989, up 34% over 1988. Greenland moved ahead of Norway in 1989, with landings in the 63,000 mt range.

The Soviet Union accounts for only 3.5% of world landings of cold-water shrimp, although its earlier performance had made it a potential competitor. In 1986, USSR landings were 25,000 mt. The Soviets consider shrimp an alternative to the cod fishery when landings of the latter are down. We have only to recall the arrival of shrimp from Soviet vessels in Quebec in 1984, a year

arrival of shrimp from Soviet vessels in Quebec in 1984, a year when cod landings were down in northern waters.

NORTH AMERICA

Shrimp landings by the U.S. were up over 4,000 mt in 1989. Although shrimp stocks fished in Oregon show few signs of weakness which might produce lower landings in 1991, landings for the U.S. as a whole seem likely to remain stable.

Landings of shrimp in Canada were up 24,000 mt since 1984, rising from 14,800 mt to 38,800 mt in 1989.

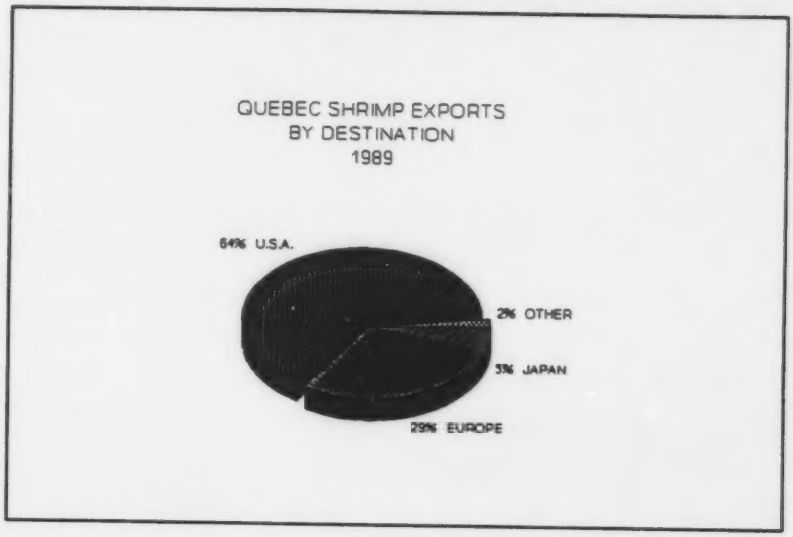
Based on these figures, it would appear that we are in a situation where the world supply of both cold and warm-water shrimp is strong. Supplies of warm-water shrimp will likely increase in years to come with the contribution of aquaculture, while the supply of cold-water shrimp seems to have peaked. Although it is difficult to predict future landings, it is unlikely that landings of cold-water shrimp will increase significantly.

Since there must be a demand to match any supply, let us look now at the demand for Quebec shrimp products.

1.3 DEMAND FOR QUEBEC SHRIMP

Historically, Quebec shrimp exports went mainly to the U.S. Although this country is still our main export market for shrimp, it has declined in importance in recent years.

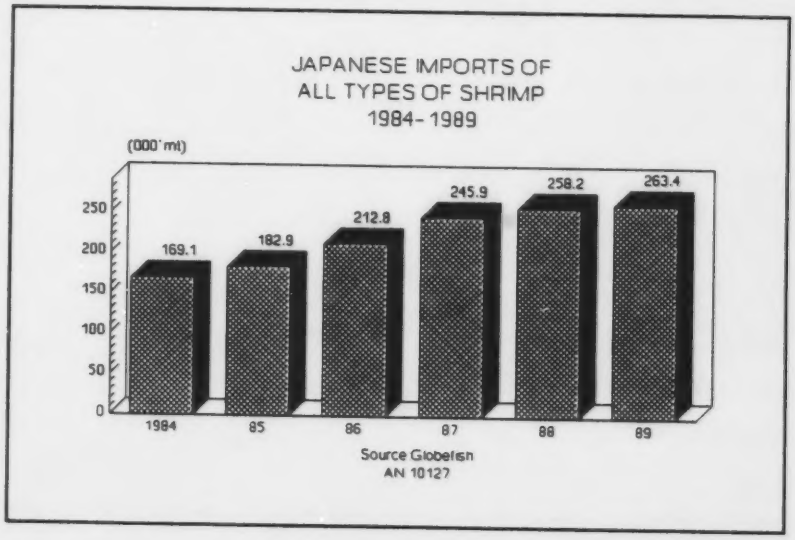
Chart 5



The American market absorbed 64% of Quebec's shrimp exports in 1989. The second-ranking customer was Europe, followed by Japan, with 29% and 5% of exports respectively. We will attempt to determine demand trends through an examination of these three destinations, Japan, Europe and the U.S.

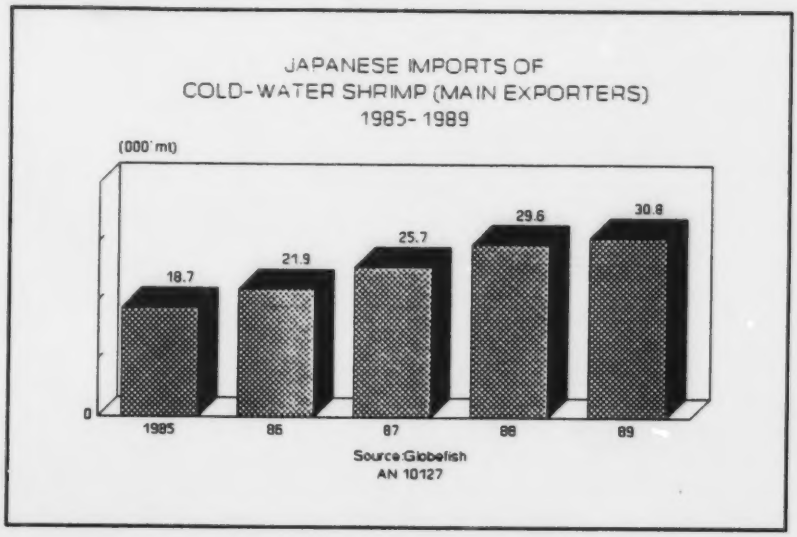
1.3.1 JAPANESE DEMAND AND PRICES

Chart 6



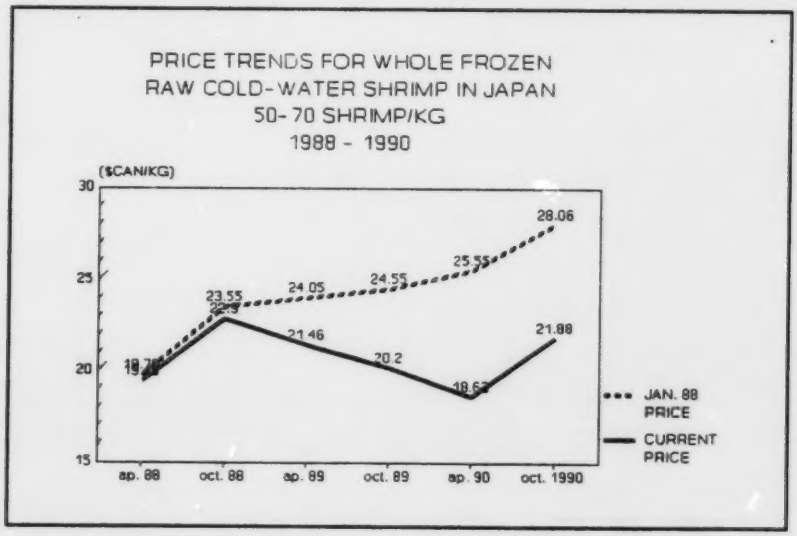
Japan, the second-ranking consumer of shrimp after the U.S., is mainly a market for tropical species. Imports have increased steadily since 1984, rising from 169,100 mt to 263,400 mt in 1989, an increase of 56%.

Chart 7



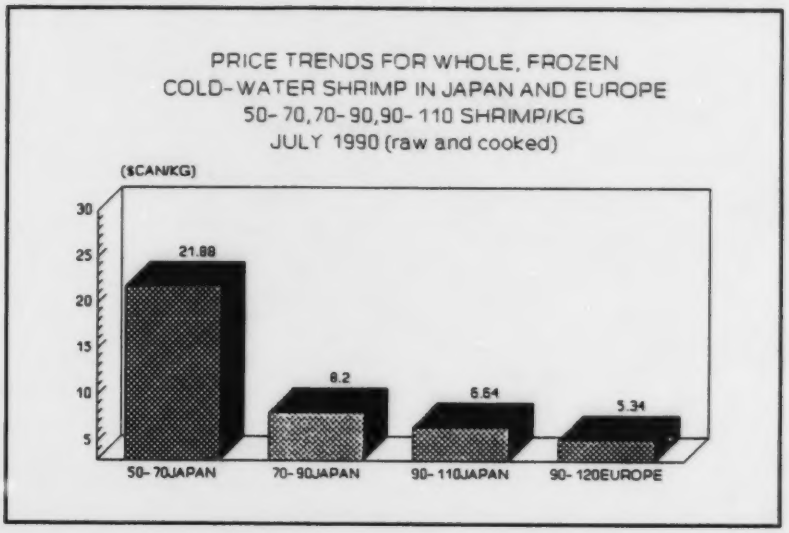
As is the case for all its imports of shrimp, Japanese imports of cold-water shrimp are on the rise, increasing from 18,700 mt in 1985 to 30,800 mt in 1989. The Japanese are fond of cold-water shrimp but, as with all seafood, they are very demanding when it comes to freshness. Their preference is for whole, raw shrimp frozen aboard ship within three hours after being taken from the water.

Chart 8



These considerations are partly responsible for the rise in prices for cold-water shrimp on this market. Prices in Japan have risen steadily since April 1988. The exchange market, however, has been unfavourable to Canada during this period (devaluation of the yen in terms of the Canadian dollar). Instead of an increase in Canadian dollar sales, Canadian exporters have to some extent experienced a decline in prices.

Chart 9



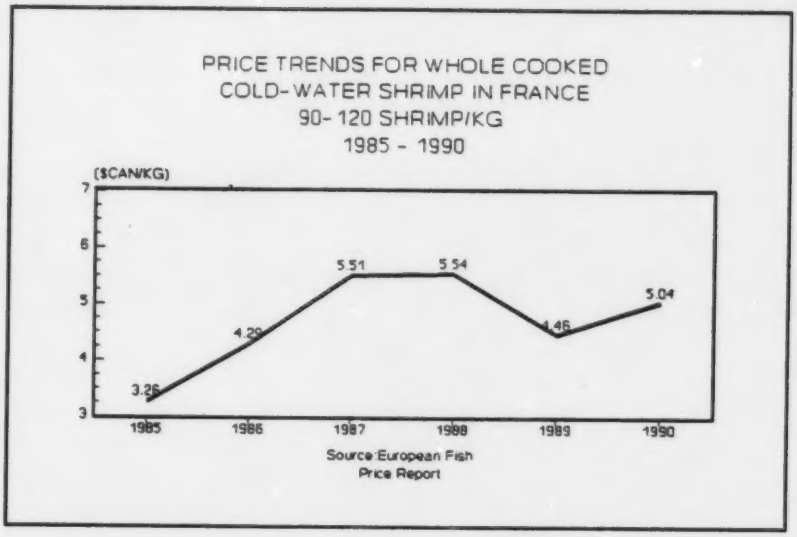
For the Canadian exporter, some shrimp products may be more advantageous to produce for the Japanese market. Prices in July 1990 for raw frozen shrimp, 90,110, 70-90 and 50-70 shrimp per kg were $Can 6.64/kg, $Can 8.20/kg and $Can 21.88/kg. It should be noted that the European price for 90-120 cooked shrimp is $Can 5.34/kg. These requirements, which obviously have a direct impact on production costs, are not the same for products destined for Japan as for those exported to Europe, but the price differential on these two markets would make it advantageous to explore this avenue.

1.3.2 EUROPEAN DEMAND AND PRICES

Shrimp consumption on the European market is also on the rise, as demonstrated by the increase of imports, which rose from 256,000 mt in 1987 to 311,000 mt, an increase of 21% in two years. The European market for shrimp is mainly for cold-water shrimp but, since supply of cold-water shrimp has practically peaked, the increased consumption has been met with cultured shrimp, as well as with an increase in the price of cold-water shrimp.

Chart 10

Thus, after a decline in prices in 1989 due to consumer resistance to price increases in previous years and the possibility of bringing in supplies of warm-water shrimp, the price of cold-water shrimp again rose by 13% in 1990.



1.3.3 U. S. DEMAND AND PRICES

The United States, like Japan, is a market for tropical shrimp and, to a lesser extent, for cold-water shrimp.

Chart 11

The American demand for all types of shrimp, in terms of imports, is on the rise. From 155,200 mt in 1984, it has increased 47%, to 228,600 mt in 1989.

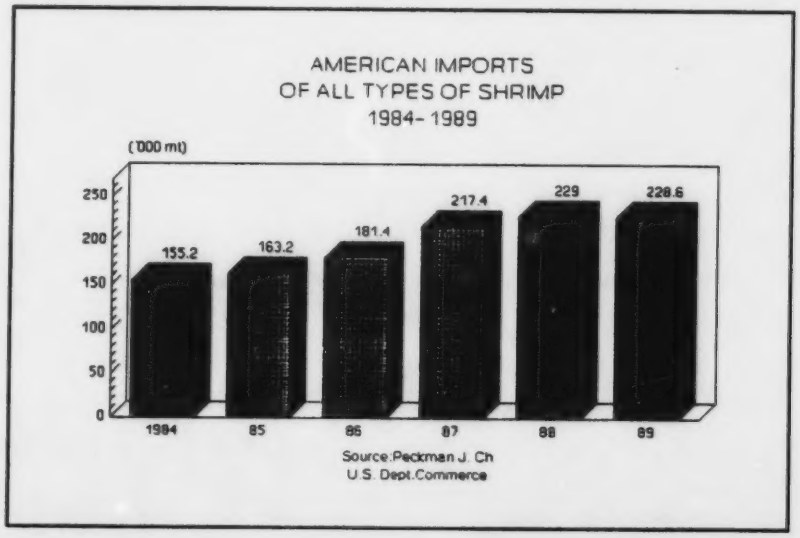
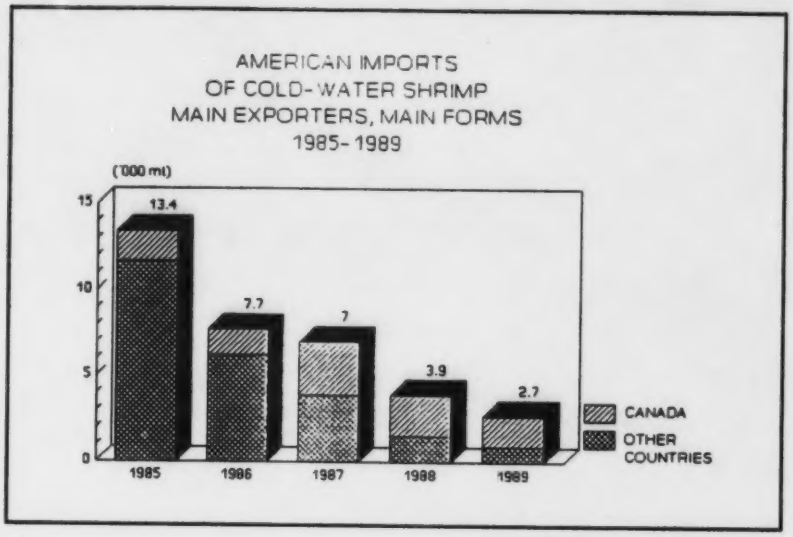


Chart 12

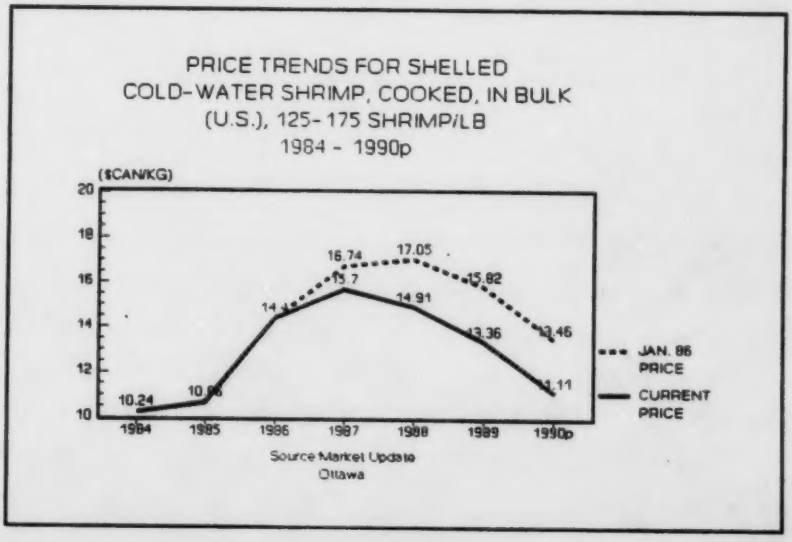
The situation for cold-water shrimp is quite different. Between 1985 and 1989, there was a decrease of 80% in U.S. imports of cold-water shrimp.



In the situation prevailing on the U.S. market in 1990, rising consumption favoured warm-water cultured shrimp. Although the American market for cold-water shrimp still exists, it is increasingly met by a rise in U.S. landings. Overall, these changes have resulted in lower prices on this market.

Chart 13

In 1990, a kilogram of shrimp sold for an average price of $Can 11.11/kg, about $2.25/kg less than the previous year. Moreover, the increased value of our dollar in relation to U.S. currency caused the Canadian industry to lose $CAN 2.35/kg. The price of this product would have been

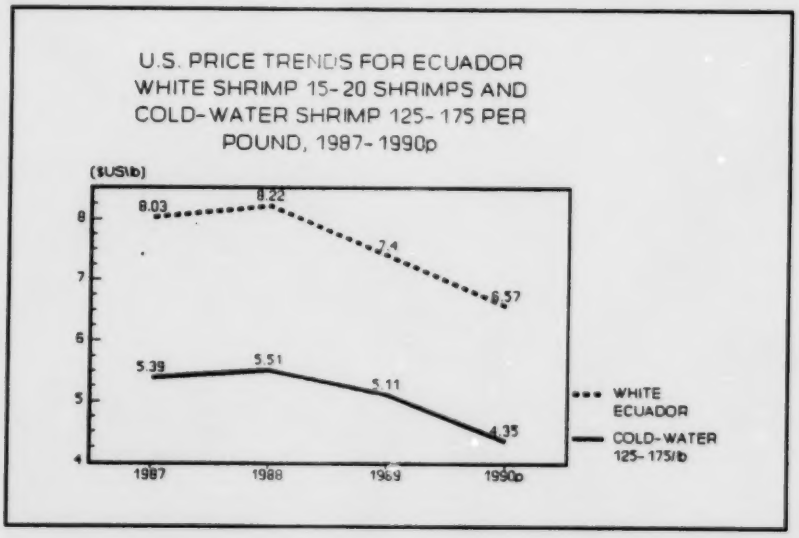


$CAN 13.46/kg if the rate of exchange with the American dollar had remained the same as in January 1986. For smaller cold-water shrimp, 250-350/lb, the price also fell in 1990, but to a lesser extent, going from $Can 11.51/kg in 1989 to $Can 10.96 in 1990, for a decline of 5%.

1.4 INTRODUCTION AND IMPACT OF CULTURED SHRIMP

Tropical cultured shrimp is increasingly available on all markets, whether Japanese, American or European. The introduction of this new source of supply has upset the traditional market for shrimp.

Chart 14



It is on the U.S. market, where consumers appear to make the least difference between shrimp products, that cultured shrimp has the greatest impact on cold-water shrimp, the price of which has followed the downward trend of prices for warm-water shrimp. On the European and particularly the Japanese markets, where a better distinction is made between products, the price for cold-water shrimp indicates attractive market opportunities. Given the decline in prices in traditional markets, the Canadian exporter might well explore market sectors that offer some potential. After this brief look at what markets may hold for the industry in the future, let us now turn to what 1990 brought for Quebec producers.

2. SECONDARY SECTOR

Price fluctuations for end products on world markets together with variations in Quebec landings had an impact on processing plants. Here, we will assess the repercussions of these changes on the secondary sector using two indexes: purchasing volume and net margin.

2.1 1989 QUEBEC PRODUCTION STATUS

In 1989, 14 purchasers, six of whom purchased more than $100,000 worth of shrimp, processed $29.3 million worth of end products, an increase of 7% over 1988. In a situation where market prices were down, this increase is due to greater volume.

2.2 TRENDS IN PURCHASES OF SHRIMP

The volume of shrimp purchased in Quebec has increased every year since 1984. In 1990, it seems to have stabilized around 9,400 mt. This increased volume has benefited plant employees, since the number of hours worked increased in the same proportion as the volume of purchases.

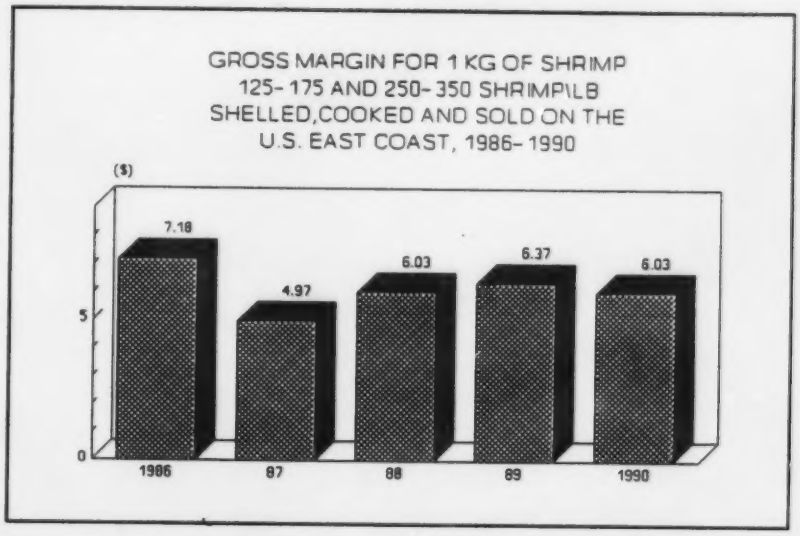
2.3 IMPACT ON THE FINANCIAL PERFORMANCE OF PLANTS

In this section, we will assess the impact of fluctuations in the price of raw materials (landing price), combined with fluctuations in the price of end products, on the financial performance of shrimp-processing plants. The method we have used is to calculate the producer's net margin.[1] We present two scenarios, depending on whether the producer produces only shelled shrimp for the U.S. market or only whole shrimp intended for the European market.

---

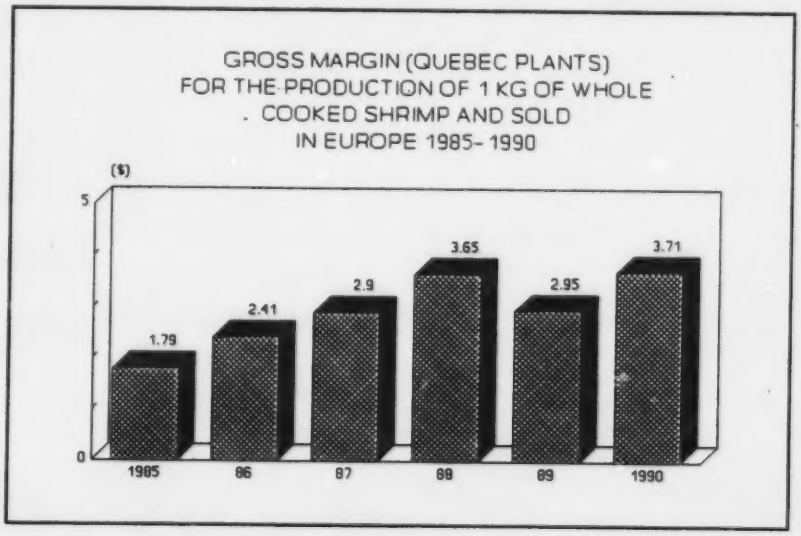
1 The net margin of fish-processing plants is determined by calculating the difference between the price per kg of production of a given type of end product and the price of raw materials used in this production. The net margin is thus the amount available to the producer to pay other fixed and variable costs and derive a product from this producing operation.

Chart 15



Production of 1 kg of shelled, bulk cooked shrimp sold on the U.S. East Coast cost $4.96 in raw materials in 1990, compared to $5.62 in 1989, while the price[2] for a kilogram of this product on the U.S. market fell from $Can 11.99/kg in 1989 to $10.99 in 1990. The resulting net margin thus fell from $6.37 to $6.03, a decrease of 5%.

Chart 16



The same type of exercise applied to producers selling shrimp on the European market shows that, as opposed to the U.S., these producers obtained a better net margin in 1990 than in 1989. For these producers, the net margin rose from $2.95 in 1989 to $3.71 in 1990, an increase of 26%.

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2 Weighted average price for shrimp 125-175 shrimp/lb (26%) and 250-350 shrimp/lb (74%).

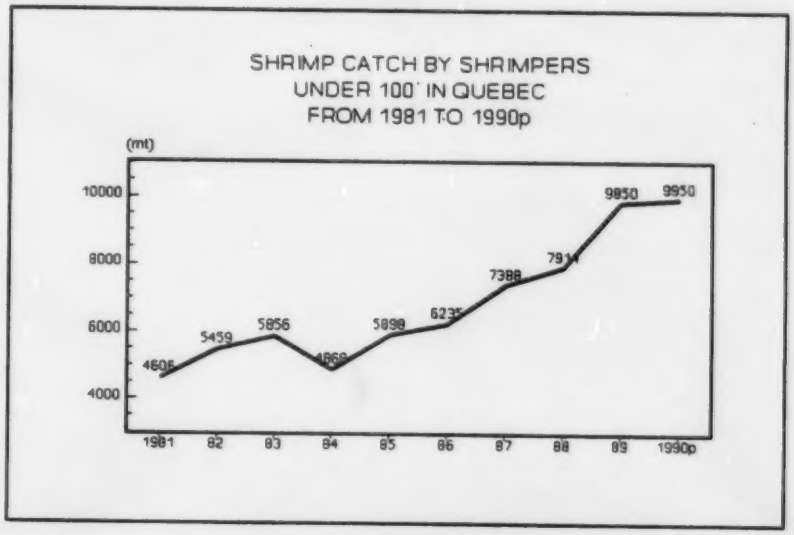
3. PRIMARY SECTOR

But what about Quebec fishermen? How did changes in markets, processing plants and biomass affect their business? To find answers to these questions, this section will deal with the profitability of Quebec shrimp fishermen, based on both volumes landed and the price paid by processors.

3.1 LANDINGS BY QUEBEC SHRIMPERS UNDER 100'

By shrimper, we mean any vessel under 100 feet in overall length, with mobile gear, that landed shrimp in 1990. There are 51 shrimpers working in Quebec, employing close to 205 skipper-fishermen and helpers.

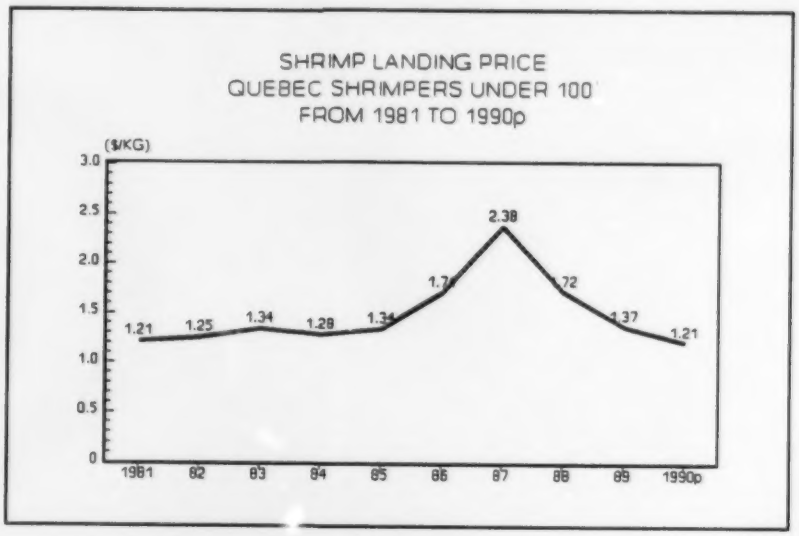
Chart 17



Shrimp landings have more than doubled in ten years. For 1989, Quebec shrimpers landed 9,850 mt, and an increase of 1% is forecast for 1990, to 9,950 mt. Biologists are of the opinion that shrimp stocks in the Gulf of St. Lawrence show no signs of decreasing.

3.2 LANDING PRICES

Chart 18



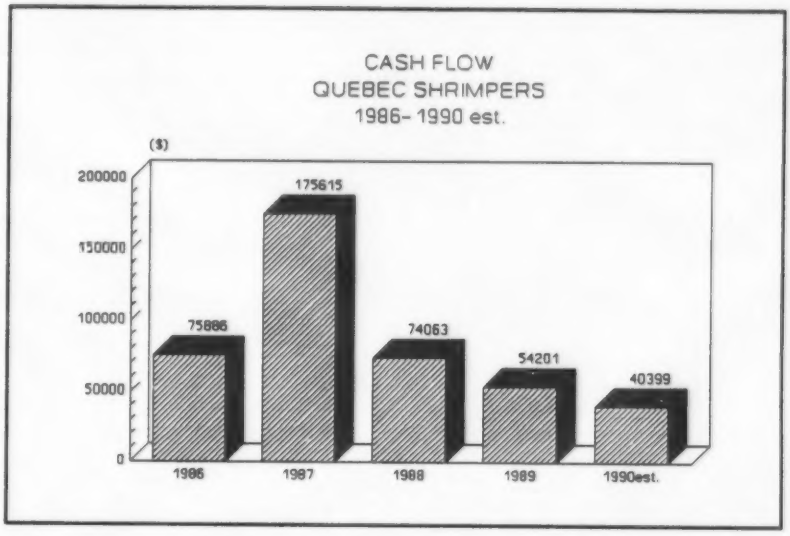
Ten years later, shrimp prices are back to where they started. In 1990 as in 1981, the price was $1.21/kg. In the space of a year, prices thus dropped 12%. Over the years, it may be seen that trends in prices to fishermen reflect cold-water shrimp price trends on the U.S. market. When the U.S. price fluctuates, the same is true of prices paid to Quebec fishermen.

Taking into account the decline in landing prices and the greater volumes landed, we may estimate the financial performance of Quebec shrimpers for 1990.

3.3 FINANCIAL PERFORMANCE, 1986, 1987, 1988, 1989 AND EXTRAPOLATED 1990

Chart 19

For Quebec shrimpers, cash flow[3] or the income of owner-captains (before taxes) was down 25% in 1990 compared to 1989. Since shrimpers recorded cash flow of $54,201 in 1989, we estimate that this should be $40,399 for 1990.



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3 Cash flow: cash flow is obtained by considering only funds actually received and paid out during the fiscal year. This gives us an indication of economic performance during the period in question. It represents the before-tax salary of an owner-captain.

TABLE 1: Trends in wolrd shrimp production (all species) ('ooo mt)

YEAR	1981	1982	1983	1984	1985	1986	1987	1988	1989	1995p
Cultured	34	85	122	175	210	305	389	488	565	900
Fished	1595	1620	1622	1690	1771	1697	1659	1690	1680	1540
Total	1629	1705	1744	1865	1981	2002	2048	2178	2245	2440

Source: Estimates from Economics Services Branch based on data from Peckman J. Charles,

P: Projections

TABLE 2: **Countries producing cultured shrimp (percentage of world production, production in metric tonnes, hectares in production and yield per hectare) in 1989**

COUNTRY	Percentage of world production	Production (rounded) (m.t.)	Hectares in production	Kilos per hectare
China	29	165,000	145,000	1,138
Indonesia	16	90,000	250,000	360
Thailand	16	90,000	80,000	1,125
Philippines	9	50,000	200,000	250
Ecuador	8	45,000	70,000	643
Viet Nam	5	30,000	160,000	187
India	4	25,000	60,000	416
Taiwan	4	20,000	4,000	5,000
Central America and Caribbean	2	12,000	12,000	1,000
South America (excluding Ecuador)	1	7,000	8,000	875
Others	5	30,800	103,300	298
TOTAL	**99**	**564,800**	**1,092,300**	**517**

Source: Rosenberry B., 1990

TABLE 3: Breakdown of cultured shrimp production by species in 1989

SPECIES	PERCENTAGE
- Giant tiger shrimp (Penaeus monodon)	33 %
- Fleshy prawn (Penaeus chinensis)	28 %
- Whiteleg shrimp (Penaeus Vannamei)	10 %
- Others	29 %

Source: Rosenberry B., 1990

TABLE 4: Landings of cold-water shrimp, main producing countries,1983-1989 ('000 mt)

COUNTRY	1983	1984	1985	1986	1987	1988	1989*
EUROPE							
Iceland	13.1	24.4	24.9	35.8	38.6	29.6	27.0
Greenland	41.2	41.5	52.4	64.1	64.4	65.1	63.0
Denmark	10.1	7.3	9.4	10.0	14.4	5.8	6.0
Norway	53.2	84.0	91.2	57.4	42.2	41.7	56.0
Faeroe Islands	7.4	9.3	11.6	10.0	10.7	14.3	10.0
U.S.S.R.	29.1	43.2	32.1	25.0	4.0	9.0	9.0
TOTAL Europe	**154.1**	**209.7**	**221.6**	**202.3**	**174.3**	**165.5**	**171.0**
UNITED STATES							
Alaska	3.4	4.3	2.0	2.2	1.2	1.1	-----
Washington	2.6	1.6	4.1	7.9	7.3	8.3	-----
Oregon	2.9	2.2	6.7	15.3	20.2	18.8	-----
California	0.5	0.7	1.5	3.1	3.9	5.0	-----
New-England	1.4	2.9	4.1	4.6	5.0	3.0	-----
TOTAL U.S.	**10.8**	**11.7**	**18.4**	**33.1**	**37.6**	**36.3**	**40.6**
CANADA							
Atlantic	14.1	11.8	13.5	17.9	25.5	29.0	36.1
Pacific	0.7	0.9	1.2	1.3	3.3	2.7	2.7
TOTAL Canada	**14.8**	**12.7**	**14.7**	**18.9**	**28.8**	**31.7**	**38.8**
TOTAL	**179.7**	**234.1**	**254.7**	**254.3**	**240.7**	**233.4**	**250.4**

* Preliminary figures

Species: Pandelus borealis et Crangon crangon

Sources: 1- D.F.O. - Ottawa, Commercial and Market Analysis Division
2- Charles Peckham, Seafood International, October 1990

TABLE 5: Trends in Quebec exports of cold-water shrimp, by country (1985-1989)

Country	1985		1986		1987		1988		1989	
	Qty m.t.	Value $'000	Qty t.m.	Value $'000	Qty t.m.	Value $'000	Qty t.m.	Value $'000	Qty t.m.	Value $'000
U.S.A.	898.1	7975.0	778.4	8230.6	727.5	9570.5	912.0	10848.0	526.7	6880.7
Japan	231.9	551.6	198.0	675.3	----	----	34.4	222.6	87.0	570.2
U.-K.	39.0	360.0	53.2	429.9	46.3	592.1	367.8	2036.2	109.3	822.1
France	12.1	127.9	9.0	115.6	----	----	6.2	92.1	----	----
Sweden	14.5	127.8	34.5	399.3	64.2	1009.4	67.1	757.3	87.4	904.6
Switzerland	10.4	101.2	35.6	338.1	80.5	1401.9	38.0	532.2	60.0	787.1
Australia	5.0	54.7	----	----	----	----	----	----	----	----
Denmark	---	----	----	----	307.8	1322.1	982.8	4145.8	47.2	215.2
Others	---	----	1.3	18.1	22.5	327.0	[redacted]	[redacted]	[redacted]	[redacted]
TOTAL	1211.0	9298.2	1110.0	10206.9	1248.8	14222.9	[redacted]	[redacted]	[redacted]	[redacted]
Iceland	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	139.0	306.2	16.3	124.5
Netherlands and Belgium							15.4	20.9	19.5	228.4
Norway	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	10.0	50.3	----	----
West Germany							0.4	1.8	----	----
Portugal	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	0.4	2.3	----	----
Others							45.9	217.1	30.1	222.0
TOTAL	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	2619.4	19232.9	983.5	10754.8

Source: Statistics Canada, International Trade

TABLE 6: U.S. imports of all types of shrimp, in thousands of metric tonnes, by main exporting country, 1984-1989p

Northern hemisphere

ORIGIN	1984	1985	1986	1987	1988	1989p
Canada	1.3	1.9	1.6	3.2	2.4	2.0
Norway	5.8	7.2	3.1	2.0	0.6	0.1
Greenland	-	0.1	-	0.0	0.0	-
Iceland	-	2.0	0.7	0.2	0.0	0.0
Denmark	-	0.4	0.2	0.3	0.0	0.0
United-Kingdom	-	0.9	1.7	1.2	0.5	0.4
Holland	-	0.1	0.1	0.1	0.0	0.0
USSR	-	0.2	0.3	-	-	-
Sub-total	7.1	12.8	7.7	7.0	3.5	2.5

Main suppliers:

China	1.4	3.1	9.4	19.2	47.4	48.6
Ecuador	21.1	19.1	28.1	46.0	47.3	37.1
Mexico	37.1	30.6	33.8	39.1	28.9	28.0
India	10.5	10.9	11.1	12.9	14.6	13.1
Thailand	8.2	11.1	10.9	10.9	10.8	21.6
Brazil	9.0	11.5	9.0	7.5	9.1	7.5
Taiwan	8.3	13.4	15.7	16.8	7.9	3.3
Panama	7.4	8.9	9.9	7.5	6.7	8.0
Pakistan	4.9	5.1	6.5	8.0	6.6	5.0
Bangladesh	1.5	1.9	2.8	4.2	5.3	5.4
Honduras	2.4	2.4	2.4	3.6	4.2	3.4
Venezuela	2.3	3.0	4.1	2.7	4.1	5.6
El Salvador	3.8	2.8	3.4	3.3	3.7	2.9
Peru	3.0	2.1	1.7	2.7	1.9	1.7
Sub-total	120.9	125.9	148.8	184.4	198.5	191.2

Other countries	27.2	24.5	24.9	26.0	27.0	34.9
TOTAL	**155.2**	**163.2**	**181.4**	**217.4**	**229.0**	**228.6**

Source: Peckman J. Charles and U.S. Department of Commerce

TABLE 7: U.S. imports of shelled and unshelled, fresh or frozen, cold-water and warm-water shrimp, by selected exporting countries, 1985-1989

Year	1985	1986	1987	1988	1989
Canada	1737	1537	3094	2362	1823
Greenland	117	0	18	37	0
Iceland	1977	711	266	45	71
Sweden	343	9	0.2	10	3.5
Norway	6865	3044	1988	556	70.3
Faeroe Islands	0	0	0	64	65
Denmark	385	217	304	59	12.5
Unit. Kingdom	910	1674	1168	544	436
Netherlands	106	68	49	42	12
Belgium	138	48	25	159	62
France	589	72	79	5	0
W. Germany	0	21.5	13.7	0	28
Switzerland	45	89	30	83	101
E. Germany	0	0.5	0	17	16
U.S.S.R.	201	250	0	0	0
Sub-total	13667	7741	7017	3946	2701
TOTAL	**155228**	**174234**	**208637**	**221502**	**222764**

Source: DFO-Ottawa, Commercial and Market Analysis Division
(Comm. 114-4545: HS 0306130020 and 0306230020)
(Comm. 114-4557: HS 0306130040 and 0306230040)
(Comm. 114-4562: HS 1605201010, 1605201030 and 1605201050)

TABLE 8: Price trends for selected cold-water shrimp products, 1984-1990

		unit	1984	1985	1986	1987	1988	1989	1990
1	Whole, cooked 90/120 shrimp/kg European market	CAN$/kg	[redacted]	3.26	4.29	5.51	5.54	4.46	5.04
2	Shelled, cooked 250-350 shrimp/lb U.S market	CAN$/kg	[redacted]	[redacted]	14.11	14.38	12.43	11.51	10.96
3	Shelled, cooked, bulk 125-175 shrimp/lb U.S. market	CAN$/kg CAN$/kg constant	10.24 [redacted]	10.66 [redacted]	14.40 14.40	15.70 16.74	14.91 17.05	13.36 15.82	11.11 13.46
4	Shelled, cooked Weighted average price 125-175 (26%) shrimp/lb 250-350 (74%) shrimp/lb U.S. market	CAN$/kg	[redacted]	[redacted]	14.19	14.72	13.08	11.99	10.99

Source: 1- European Fish Price Report

2- Seafood Price-Current

3- Market Update: 1990 price is average price for April and August 1990

TABLE 9: Price trends for cultured shrimp, 1987-1990, for selected products

Spec./Origin Product/f.o.b Price/Form	TIGER ASIA Headed $US/lb		Bangladesh U.S. 16/20 CNT		ECUADOR WHITE Headed, frozen, raw $US/lb		16/20 CNT	
YEAR	1987	1988	1989	1990	1987	1988	1989	1990
JANUARY	6.40	6.76	6.90	4.75	7.41	7.90	8.33	5.84
FEBRUARY	6.45	6.95	6.75	5.38	7.44	8.05	8.17	5.87
MARCH	6.70	7.06	6.00	5.89	7.67	8.16	8.00	6.42
APRIL	----	7.18	6.25	----	8.20	8.23	7.95	6.45
MAY	----	7.26	5.17	----	8.62	8.17	7.63	6.45
JUNE	----	7.34	5.30	----	8.73	8.18	7.60	6.57
JULY	7.83	7.26	5.46	6.71	8.61	8.21	7.58	7.11
AUGUST	7.68	7.02	5.25	6.70	8.43	8.39	7.33	7.32
SEPTEMBER	7.55	6.98	4.74	----	8.00	8.35	6.95	----
OCTOBER	7.15	6.95	4.73	----	7.75	8.30	6.66	----
NOVEMBER	6.78	6.97	4.73	----	7.73	8.39	6.48	----
DÉCEMBER	6.75	6.80	4.68	----	7.80	8.40	6.19	----
ANNUAL AVERAGE	7.03	7.04	5.49	5.88	8.03	8.22	7.40	6.57

Source: Seafood Price-Current and Peckman J. Charles

TABLE 10: Japanese imports of cold-water shrimp, in thousands of metric tonnes, by main exporting country, 1984-1989p

EXPORTER	1985	1986	1987	1988	1989	1989[1]	1990[1]
Greenland	6.3	9.5	12.9	14.2	16.2	10.5	9.6
Iceland	1.7	2.1	3.3	3.6	3.0	1.9	1.7
Canada	0.2	0.7	1.2	1.6	3.0	1.9	1.1
Denmark	2.5	1.7	2.0	2.7	2.7	2.3	1.2
Norway	4.3	3.1	2.5	3.8	2.3	1.8	2.4
Korea	2.3	3.3	2.1	2.3	1.7	---	---
U.S.S.R.	0.5	0.4	0.6	0.5	0.9	---	---
U.S.A.	0.3	0.4	0.3	0.4	0.8	---	---
France	0.6	0.7	0.8	0.5	0.2	0.2	0.04
TOTAL	18.7	21.9	25.7	29.6	30.8	18.5[2]	16.1[2]

1- For the period January-August

2- Total for selected countries (Canada, Iceland, Norway, Denmark, France, Greenland)

Source: Globefish Highlights, January 1990, p. 3
Japanese Fisheries Market Report, October 1990, p. 17

TABLE 11: Japanese imports of all types of shrimp, in thousands of metric tonnes, by main exporting country, 1984-1989p

ORIGIN	1984	1985	1986	1987	1988	1989
Indonesia	24.1	24.4	27.7	30.8	38.6	50.0
Thailand	6.7	7.4	8.9	11.6	21.9	38.8
China	10.3	10.7	18.7	27.9	38.0	37.2
India	38.5	36.3	36.7	36.5	32.0	29.7
Philippines	5.1	6.0	8.4	11.8	18.6	18.4
Viet Nam	5.1	7.0	9.4	11.7	16.5	15.9
Greenland	2.6	6.2	9.8	12.9	13.9	15.9
Taiwan	16.5	21.8	37.8	49.2	20.6	8.9
Others	60.2	63.1	55.4	53.5	58.1	48.6
TOTAL	**169.1**	**182.9**	**212.8**	**245.9**	**258.2**	**263.4**

Source: Seafood International, October 1990, p. 25

TABLE 12: Price trends for cold-water shrimp on the Japanese market

2L: 50-70 shrimp/kg
L: 70-90 shrimp/kg
MS: 90-110 shrimp/kg
$Can/kg

	2L			L	MS
	Yen	Constant $Can Jan. 88	Current $Can	Current $Can	Current $Can
April 1988	1975	19.79	19.46	----	6.27
October 1988	2350	23.55	22.90	----	6.26
April 1989	2400	24.05	21.46	----	----
October 1989	2450	24.55	20.20	----	----
April 1990	2550	25.55	18.63	----	----
July 1990	2800	28.06	21.88	8.20	6.64
October 1990	2800	28.06	-----	----	

Source: Tsukiji Report
Japanese Fisheries Market Report

Constant exchange rate: 99.78 Yen = $CAN 1, January 1988

TABLE 13: Trends in value of Quebec production, by region ($'000)

	1984	1985	1986	1987	1988	1989
Gaspé	13,430	19,760	18,596	27,941	23,378	22,466
North Shore	2,097	3,523	3,428	8,784	3,617	6,476
TOTAL	**15,527**	**23,283**	**22,024**	**36,725**	**27,368**	**29,315**

Source: Statistics Division, Quebec Region

TABLE 14: Gross margin for the shrimp processing sector based on various scenarios

1st scenario: Production based on shelled, cooked shrimp, 125-175 shrimp/lb and 250-350 shrimp/lb, 1986-1990

Year	Selling price* $Can/kg	Raw materials used** $Can/kg	Margin $Can/kg
1986	14.19	7.01	7.18
1987	14.72	9.76	4.97
1988	13.08	7.05	6.03
1989	11.99	5.62	6.37
1990	10.99	4.96	6.03

2nd scenario: Production based on whole cooked shrimp (1 kg), 90-120 shrimp/kg, sold in Europe, 1985-1990

Year	Selling price* $Can/Kg	Raw materials used** $ Can/Kg	Margin $Can/kg
1985	3.26	1.47	1.79
1986	4.29	1.88	2.41
1987	5.51	2.61	2.90
1988	5.54	1.89	3.65
1989	4.46	1.51	2.95
1990	5.04	1.33	3.71

* Average weighted price depending on proportions of two types of products mentioned (125-175 shrimp/lb (26%) and 250-350 shrimp/lb (74%)).

** Conversion rate used 4.1

* Selling price ($Can/kg) of product is calculated on the basis of average monthly prices available ($US/lb) and ($US/kg) converted into $Can/kg using the exchange rates for each month and the conversion factor for pounds to kilograms (2,2 lb/kg)

** Conversion rate used 1.1

TABLE 15: **Catch record of Quebec shrimpers under 100' and average price per kilo paid to fishermen (1981-1990p)**

YEAR	CATCH (mt)	PRICE** ($/kg)	YEAR	CATCH (mt)	PRICE** ($/kg)
1981	4,606	1.21	**1986**	6,235	1.71
1982	5,549	1.25	**1987**	7,388	2.38
1983	5,856	1.34	**1988**	7,914	1.72
1984	4,868	1.28	**1989**	9,850	1.37**
1985	5,898	1.34	**1990***	9,950p	1.21

* Extrapolation of landings as of November 7, 1990, Resource Allocation Division.

** Source: DFO - Quebec, Economics, Statistics and Informatics Branch

TABLE 16: Estimated average cash flow for Quebec shrimpers under 100', 1987-1990

	1987	1988	1989*	1990**
INCOME	($)	($)	($)	($)
Income from fishing	429,682	296,527	292,280	272,573
Other income	0	0	0	0
Total income	**429,682**	**296,527**	**292,280**	**272,573**
COSTS				
Fixed operating costs	12,139	12,139	21,559	21,559
Maintenance costs	21,902	25,402	14,994	14,994
Gear costs	8,093	9,386	16,135	16,135
Variable operating costs A	2,732	3,515	13,495	13,495
Variable operating costs B	35,617	41,308	46,033	46,033
Labour	138,340	95,470	87,573	81,668
Finance charges	35,244	35,244	38,290	38,290
Total costs	**254,067**	**222,464**	**238,079**	**232,174**
CASH FLOW	**175,615**	**74,063**	**54,201**	**40,399**

Source: * Costs and Earnings 1989, Pierre Lemieux, DFO Quebec

** Estimates as of November 9, 1990

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DIVISION DES SERVICES ECONOMIQUES

ECONOMIC SERVICES DIVISION

Ministère des Pêches et des Océans - Région du Québec
Department of Fisheries and Oceans - Quebec Region

(FÉVRIER 1991)

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